

## CLAIMS

What is claimed is:

1. A golf ball comprising a core comprising an inner core and an outer core and a  
5 cover comprising an inner cover and an outer cover wherein the inner core is encased by an  
outer core and the inner core comprises at least about 70% of the total volume of the core,  
wherein the inner core has a compression from about 15 to about 55, and wherein the inner  
core is substantially free of halogenated organo-sulfur compounds.
- 10 2. The golf ball of claim 1, wherein the inner core comprises at least about 75% of  
the total volume of the core.
3. The golf ball of claim 1, wherein the inner core comprises at least about 80% of  
the total volume of the core.
- 15 4. The golf ball of claim 1, wherein the inner core has a diameter from about 1.25  
inches up to about 1.55 inches.
5. The golf ball of claim 4, wherein the inner core has a diameter of about 1.30  
20 inches to about 1.50 inches.
6. The golf ball of claim 1, wherein the inner core comprises a rubber material, a  
cross-linking agent, at least one filler, and an organic peroxide.
- 25 7. The golf ball of claim 1, wherein the outer core has a diameter from about 1.55  
inches up to about 1.62 inches.
8. The golf ball of claim 1, wherein the compression of the core is from about 60  
to about 100.
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9. The golf ball of claim 1, wherein the outer core has a Shore C hardness of at least about 80.

10. The golf ball of claim 9, wherein the hardness of the outer core is at least about 85 Shore C.

11. The golf ball of claim 1, wherein the outer core comprises a rubber material, a cross-linking agent, at least one filler and an organic peroxide.

12. The golf ball of claim 1, wherein the inner cover has a Shore D hardness of at least about 60.

13. The golf ball of claim 12, wherein the hardness of the inner cover is at least about 65 Shore D.

14. The golf ball of claim 1, wherein the inner cover has a thickness of about 0.015 inches to about 0.055 inches.

15. The golf ball of claim 14, wherein the thickness of the inner cover is about 0.020 inches to about 0.040 inches.

16. The golf ball of claim 1, wherein the outer cover has a Shore D hardness about 62 or less.

17. The golf ball of claim 16, wherein the hardness of the outer cover is about 55 Shore D or less.

18. The golf ball of claim 1, wherein the outer cover has a thickness of less than about 0.045 inches.

19. The golf ball of claim 18, wherein the thickness of the outer cover is less than about 0.35 inches.

20. The golf ball of claim 1, wherein the inner cover comprises an  
5 ethylene/methacrylic acid copolymer or an ethylene/acrylic acid copolymer, and the outer cover comprises a castable polyurethane or polyurea.